

We claim:

1. A method of transmitting at least two data flows over a telecommunications link, wherein each data flow can have a different set of quality of service attributes defined for it, comprising the steps of:

(i) receiving a packet for transmission over said link;

(ii) examining said packet to determine an appropriate set of quality of service attributes required for it;

(iii) placing said examined packet into one of a plurality of logical channel queues, said one logical channel queue having defined therefor quality of service attributes corresponding to the determined quality of service attributes required for said packet;

(iv) determining a data transmission capacity for said link and selecting one of said plurality of logical channel queues which holds data to be transmitted with the highest priority for transmission and packaging and transmitting as much data from said logical channel queue as can be packaged to fit within said determined transmission capacity of said channel; and

(v) repeating steps (i) through (iii) and step (iv) as necessary.

2. The method of claim 1 wherein:

said telecommunications link is structured into two or more channels and each of said two or more channels can have different amounts of data transmission capacity; and

each of said plurality of logical channel queues can be assigned to one or more of said two or more channels and in step (iv), the determined data transmission capacity is determined for each channel and, for each channel, one of the assigned logical channel queues is selected for transmission.

3. The method of claim 2 wherein said two or more channels can comprise any of a dedicated channel between a pair of endpoints and a broadcast channel between an endpoint and a plurality of other endpoints.

4. The method of claim 3 wherein said dedicated channel transports data between a radio base station and a subscriber station and wherein said broadcast channel transports data between

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said radio base station and a plurality of subscriber stations.

5. The method of claim 2 wherein the transmission capacity of each of said at least two channels is adjusted as needed to meet to service the logical channel queues assigned to it.
6. The method of claim 1 wherein the quality of service attributes include whether or not ARQ is to be performed for the data flow.
7. The method of claim 1 wherein the quality of service attributes include whether or not header compression is to be performed for the data flow.
8. The method of claim 1 wherein the quality of service attributes include whether or not a traffic shaping protocol is to be applied to said data flow.
9. The method of claim 3 wherein a logical channel queue can be associated with a dedicated channel and at least one broadcast channel.
10. The method of claim 4 wherein a set of logical channel queues is defined for each of said plurality of subscriber stations.
11. The method of claim 1 wherein the contents of each logical channel queue are arranged according to a defined priority the current highest priority packet is selected for transmission only after transmission of the previous highest priority packet is completed.
12. The method of claim 11 wherein the contents of a different logical channel queue can be preemptively selected for transmission next before completion of transmission of a packet from another logical channel queue.
13. The method of claim 1 further comprising the step of creating a logical channel queue with a required set of quality of service attributes if, after step (ii), no logical channel queue is available with corresponding quality of service attributes and, in step (iii), placing said packet into said created logical channel queue.

14. A system for the transmission of data flows from a first endpoint to one or more of a plurality of other endpoints through a link where each flow can have different quality of service attributes defined therefor, comprising:

a network interface at said first endpoint to receive packets from said data flows for transmission through said link to said other endpoints;

a set of logical channel queues, each of said logical channel queues in said set being operable to queue a received packet and having a set of defined quality of service attributes defined for the contents of the queue;

a packet classifier to examine said received packets to determine the quality of service attributes for said packet and to place received packets into selected ones of said logical channel queues with corresponding quality of service attributes; and

a link controller which determines the available data transmission capacity to said plurality of end points and which selects for transmission a portion of a packet from the logical channel queue whose contents have the highest priority, the link controller segmenting the packet as necessary to have the portion fit within the data transmission capacity of said link.

15. The system of claim 14 wherein said first endpoint is a radio base station and said plurality of other endpoints are subscriber stations.

16. The system of claim 15 wherein said base station maintains a set of logical channel queues for each of said plurality of subscriber stations.

17. The system of claim 16 wherein said link is structured into two or more channels and said link controller selects, for each of said at least two channels, a portion of a packet from a logical channel queue for transmission to at least one of said plurality of endpoints.

18. The system of claim 17 wherein at least one of said at least two channels is a dedicated channel between said radio base station and one of said subscriber stations and another of said at least two channels is a broadcast channel from said base station to at least two or more of said plurality of subscriber stations.

19. The system of claim 18 wherein said link controller is operable to change the structure of said at least one dedicated channel to alter its data transmission capacity.